

Information sheet for the course Physics II.

University: <i>Alexander Dubček University of Trenčín</i>					
Faculty: <i>Faculty of special technology</i>					
Course unit code: <i>SaOA/B/4-08/d</i>			Course unit title: <i>Physics II.</i>		
Type of course unit: <i>compulsory</i>					
Planned types, learning activities and teaching methods: <i>2 lecture hours, 1 practice hour and one lab hour per week, attendance teaching method</i>					
Number of credits: 5					
Recommended semester: <i>2nd semester in the 1st year (full-time)</i> <i>2nd semester in the 1st year (part-time)</i>					
Degree of study: <i>I. (bachelor)</i>					
Course prerequisites: <i>SaOA/B/4-07/d Physics I.</i>					
Assessment methods: <i>Written test and interview. Conditions: Successful completion of laboratory practice, preparation and submission of protocols in the requested format and quality. Participation in computing workshops and meet minimum on written tests. At least 60% attendance at lectures. Point-rating: max. 70 points from the written work, max. 20 points for the laboratory exercises and protocols, maximum 10 points from the calculation seminars. A > 90 B > 80 C > 70 D > 60 E > 50 points.</i>					
Learning outcomes of the course unit: <i>The student can analyze and synthesize large and specialized factual knowledge, principles and processes, general concepts in a broad context in understanding the basic physical laws in the field of electrostatics, electrokinetics, magnetism, electromagnetic waves and optics bases. Application of laws in the technical sphere.</i>					
Course contents: <i>Electric charge. Coulomb's law, intensity and potential of electric field. Electrical voltage. Electric field and equipotential lines,. Electric capacitor, capacity and energy of charged capacitor. Capacitor with real dielectric, permittivity and electric susceptibility. Electric current, Ohm's Law in elementary form. Kirchhoff's laws. Electrical work and power. Alternating current, amplitude, frequency, phase, rms value. The electrical resistance, inductance and capacity. Electrical impedance. Fundamentals of magnetism. The magnetic field vector, the magnetic field lines. Lorentz force. Biot-Savart law. Magnetic flux. Ampere's law. The magnetic field in a real environment, permeability, magnetic susceptibility. Diamagnetic, paramagnetic and ferromagnetic materials. Ferromagnetic hysteresis. Electromagnetic induction, Faraday's law of induction, Lenz's rule. Electromagnetic waves, Maxwell equations. Fundamentals of geometric and wave optics.</i>					
Recommended of required reading: <i>ILKOVIČ, D.: Fyzika. SNTL 1960.</i> <i>ŠTUBŇA, I.: Fyzika I. Elektrina a magnetizmus, Skriptum TnU, 1999.</i> <i>KREMPASKÝ, J.: Fyzika. SNTL, Bratislava, 1982.</i> <i>ŠTUBŇA, I., KOŠINA S., VALKO, L., HÚŠŤAVA, Š., PERICHTA, P.: Fyzika. Návody na laboratorne cvičenie z Fyziky. TnUAD, 2000.</i> <i>FEYNMAN, LEIGHTON, SANDS: Prednášky z fyziky. ALFA 1983-1985.</i> <i>ÁČ, V.: Physics I., lectures in electronic form TnUAD 2014.</i>					
Language: <i>Slovak</i>					
Remarks: <i>The subject is provided in the summer semester in I. year of full-time study. Compulsory subject.</i>					
Evaluation history: <i>Total number of students being evaluated: 84</i>					
A	B	C	D	E	FX
2.38	38	23.81	34.52	36.9	0.0
Lecturers: <i>Assoc.prof. Ing. Vladimír Áč, CSc. – lecturer</i>					

PaedDr. Erika Hujová, PhD. - assistant instructor

Last modification: 15.4.2014

Supervisor: *prof. Ing. Alexej Chovanec, CSc., guarantee of the study program “Vehicles Maintenance and Repair”.*